Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Electronic Supplementary Information for Solvent-induced luminescence behavior of Ce/Eu@Gd-MOF for ratiometric detection for D_2O in H_2O

Xiaoxuan Fan,[a] Zhiqiang Guo,[a] Xiaokun Wen,[b] Wen Liu,[a] Baijie Guan,[a] Feifei Yin,[a] Xia Hong,[b] Tianya Tan,[a] Kexin Wang,[a,*] Jiwei Wang,[a,*]

[a] *College of Physics, Liaoning University, Shenyang, 110036, China*

[b] *Key Laboratory of UV-Emitting Materials and Technology (Northeast Normal University), Ministry of Education, Changchun, 130024, China*

E-mail: wyf93jl@163.com (Kexin Wang); wangjiwei@lnu.edu.cn (Jiwei Wang)

Emission spectra of Eu@Gd-MOF and Ce/Eu@Gd-MOF

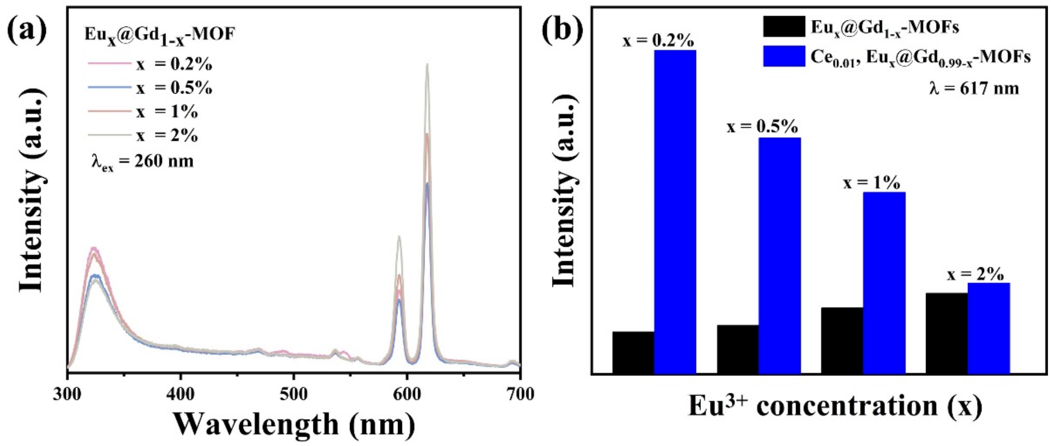

Fig. S1 (a) Emission spectra of $Eu_x@Gd_{1-x}$-MOFs (x = 0.002, 0.005, 0.01, 0.02) samples (λ_{ex} = 260 nm). (b) The comparison of the luminescence intensity between Eu^{3+} doped and Ce^{3+}/Eu^{3+} co-doped in Gd-MOFs

Fig. S1a depicts the emission spectra of sample $Eu_x@Gd_{1-x}$-MOFs (x = 0, 0.002, 0.005, 0.01, 0.02) and $Ce_{0.01}/Eu_x@Gd_{0.99-x}$-MOFs (x = 0.002, 0.005, 0.01, 0.02) under the same texting conditions. Fig. S1b shows the luminescence of the samples at 617 nm, where the emission intensity of the Eu@Gd-MOFs samples are lower than $Ce_{0.01}$/Eu@Gd-MOFs, due probably to the energy transfer between the Ce^{3+} and the

Eu^{3+} units.

Emission intensity at 617 nm of Ce/Eu@Gd-MOFs in sovlents

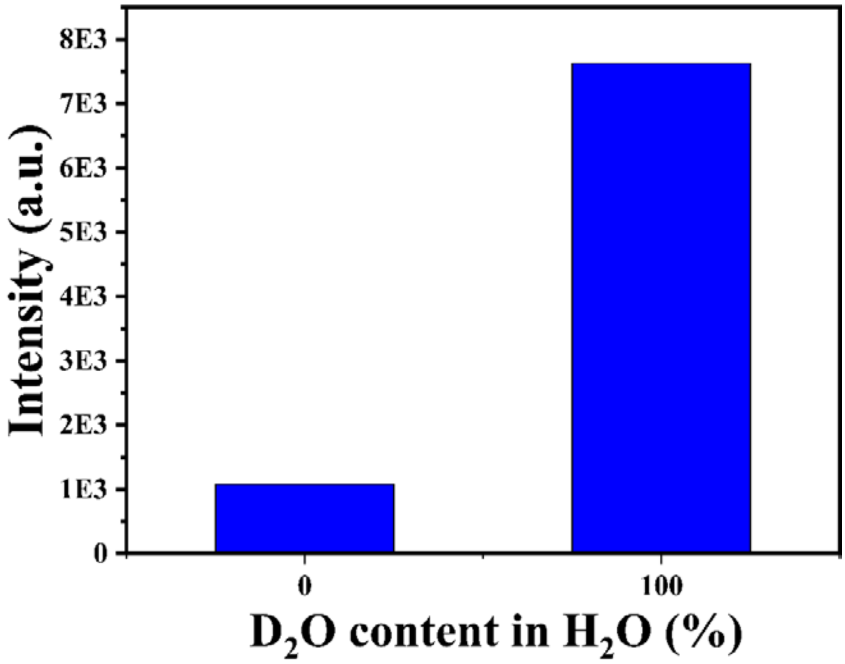

Fig. S2 Emission intensity at 617 nm of Ce/Eu@Gd-MOFs dispersing in H_2O and D_2O

Energy transfer efficiency of Ce/Eu@Gd-MOFs in H_2O and D_2O

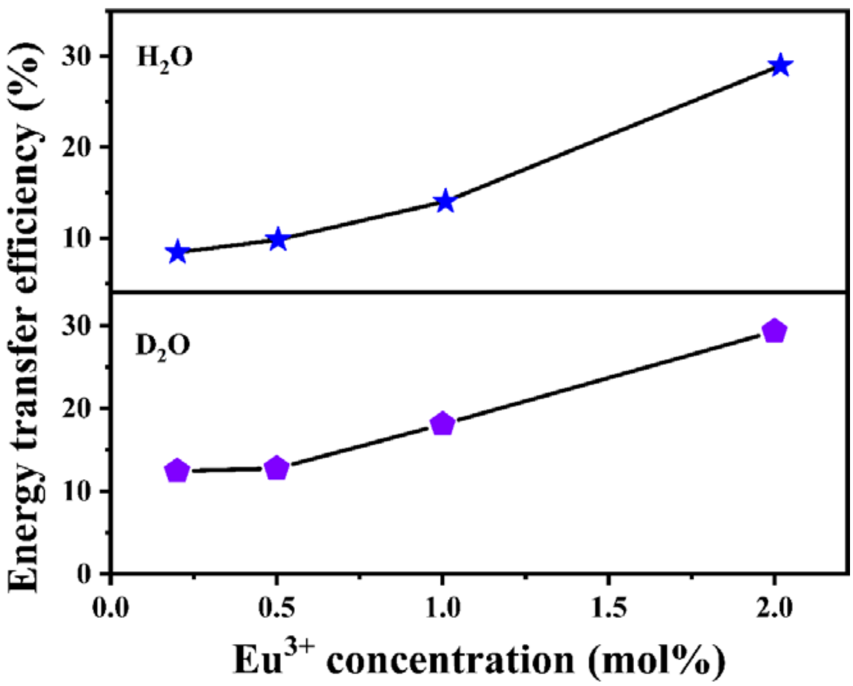

Fig. S3 Energy transfer efficiency of Ce/Eu@Gd-MOFs in H_2O and D_2O.

Selectivity of Ce/Eu@Gd-MOFs for D_2O detection

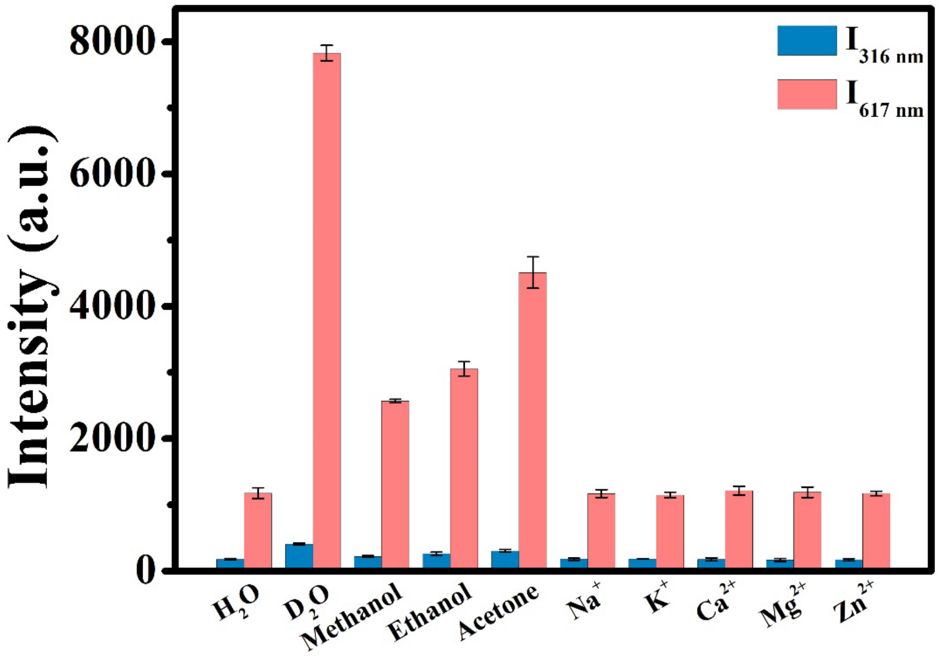

Fig. S4 Emission intensity at 316 nm and 617 nm of Ce/Eu@Gd-MOF dispersion in the presence of other common species (Na^+, K^+, Ca^{2+}, Mg^{2+}, Zn^{2+}, methanol, ethanol and acetone). The ion concentration is 1 mM.